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EXAMINER

VO, LILIAN

ART UNIT PAPER NUMBER

2127

DATE MAILED: 09/27/2004

6

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|-------------------------------|-------------------------------|--|
| Office Action Summary | Application No. 09/691,879 | Applicant(s) SMYERS ET AL. | |
| | Examiner Lilian Vo | Art Unit 2127 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 July 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 - 4, 6 - 34, and 36 - 62 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) 24, 29, 54 and 59 is/are allowed.
- 6) ☒ Claim(s) See Continuation Sheet is/are rejected.
- 7) ☒ Claim(s) 8, 13, 26 - 28, 30, 38, 43, 56 - 58 and 60 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Continuation of Disposition of Claims: Claims rejected are 1 - 4, 6 - 7, 9 - 12, 14 - 23, 25, 31 - 34, 36 - 37, 39 - 42, 44 - 53, 55, 61 and 62.

DETAILED ACTION

1. Claims 1 – 4, 6 – 34 and 36 - 62 are pending. Claims 5 and 35 have been canceled.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 14 – 18 and 44 - 48 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

4. **Claims 14, 15, 44 and 45** recite the limitation "device software". There is insufficient antecedent basis for this limitation in the claim.

5. **Claims 16 and 46** recite the limitation "cantaloupe manager". There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

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(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Claims 1 – 4, 6, 7, 9 – 12, 14, 19, 31 – 34, 36, 37, 39 – 42, 44, 49, 61 and 62 are rejected under 35 U.S.C. 102(e) as being anticipated by Gulick (US 6,625,743).

8. Regarding **claim 1**, Gulick teaches an apparatus for implement a multi-level system model, comprising:

a picokernel configured to schedule and execute one or more selected processes in an electronic device, said one or more selected processes including an isochronous process and a plesiochronous process (abstract, col. 1, lines 15 – 42, col. 2, lines 1 – 8, 21 – 31, col. 3, lines 50 – 62, col. 4, lines 31 – 39: schedule tasks that generate or consume blocks of isochronous data); and

a processor coupled to said electronic device for controlling said picokernel (col. 2, lines 21 – 31, figs. 1 – 5).

9. Regarding **claim 2**, Gulick teaches the apparatus of claim 1, wherein said electronic device is coupled to an electronic network that is implemented according to an IEEE 1394 serial bus standard (col. 1, lines 42 – 47, col. 3, lines 50 – 54).

10. Regarding **claim 3**, Gulick teaches the apparatus of claim 1, wherein said electronic device is one of a consumer-electronics device, an audio-visual device, and a computer device (abstract, col. 1, lines 15 – 25).

11. Regarding **claim 4**, Gulick teaches the apparatus of claim 1, wherein said one or more selected processes include at least one of transporting time-sensitive data and processing time-sensitive data (col. 1, lines 15 – 42, col. 3, lines 50 – 62).

12. Regarding **claim 6**, Gulick teaches the apparatus of claim 5, wherein said at least one of an isochronous process and a plesiochronous process are executed in a manner that is synchronized with isochronous cycles that are each synchronized to an isochronous clock (abstract, col. 1, lines 15 – 42, col. 3, lines 50 – 62, col. 4, lines 31 - 39).

13. Regarding **claim 7**, the apparatus of claim 6, wherein said picokernel is repeatedly triggered to schedule and execute said at least one of an isochronous process and a plesiochronous process by a cycle start signal in a manner that is synchronized with said isochronous cycles (abstract, figs. 6 and 7).

14. Regarding **claim 9**, Gulick teaches the apparatus of claim 1 wherein said picokernel is stored in a memory device that also includes at least one of device software, a cantaloupe manager, one or more cantaloupes, one or more endochronous application program interfaces,

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one or more isochronous process representations, and one or more plesiochronous process presentations (fig. 4, col. 6, lines 6, lines 1 – 46).

15. Regarding **claim 10**, Gulick teaches the apparatus of claim 9, wherein said picokernel includes at least one of isochronous scheduler, an isochronous process list, a plesiochronous scheduler, and a plesiochronous process list (abstract, col. 3, lines 50 – 63, col. 5, lines 1 – 14).

16. Regarding **claim 11**, Gulick teaches the apparatus of claim 9, wherein said one or more cantaloupes each includes one or more device resource identifiers that are each associated with a corresponding device resource usage value (col. 7, line 37 – col. 8, line 7, fig. 7).

17. Regarding **claim 12**, Gulick teaches the apparatus of claim 9, wherein said endochronous application program interfaces include at least one of means for installing isochronous services, means for creating and controlling endochronous processes, and means for communication through a signaling mechanism (col. 6, line 25 – col. 7, line 2).

18. Regarding **claim 14**, Gulick teaches the apparatus of claim 1, wherein device software performs an initial identification procedure that includes receiving notification information for a transfer or a processing of isochronous data (abstract, col. 6, lines 16 – 20).

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19. Regarding **claim 19**, Gulick teaches the apparatus of claim 1, wherein picokernel detects a cycle start signal from an isochronous clock to signify the start of an isochronous cycle (abstract, col. 2, lines 1 – 31, figs. 6, 7).

20. Regarding **claim 62**, Gulick teaches an apparatus for implement a multi-level system model, comprising:

means for scheduling one or more selected processes in an electronic device (abstract, col. 2, lines 1 – 8, 21 – 31);

means for executing said one or more selected processes (abstract, col. 2, lines 1 – 8, col. 5, lines 9 – 13);

means for controlling said means for scheduling and said means for executing (col. 2, lines 21 – 31, figs. 1 – 5).

21. **Claims 31 – 34, 36, 37, 39 - 42, 44, 49 and 61** are rejected on the same ground as stated in claims 1 – 7, 9- 12, 14 and 19 above.

Claim Rejections - 35 USC § 103

22. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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23. Claims 15 – 18, 20, 45 – 48 and 50 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gulick (US 6,624,743) in view of Gulick (US 6,502,123, hereinafter D. Gulick).

24. Regarding **claim 15**, Gulick did not teach the additional limitation as claimed. Nevertheless, D. Gulick teaches device software generates a request to the application program interfaces for instantiating an isochronous process (abstract, col. 11, lines 41 – 56, fig. 6).

It would have been obvious for one of an ordinary skill in the art, at the time the invention was made, to combine both references of Gulick so that isochronous tasks can be executed more reliable in a general-purpose operating system (D. Gulick, abstract, col. 2, lines 35 – 36).

25. Regarding **claim 16**, Gulick did not teach the additional limitation as claimed. Nevertheless, D. Gulick teaches a resource manager analyzes one or more resource characterizations to determine whether sufficient device resources are available for authorizing said one or more endochronous application program interfaces to instantiate said isochronous process on said electronic device (abstract, col. 7, lines 17 – 29, col. 8, lines 46 – 67, col. 11, lines 41 – 56, fig. 6).

It would have been obvious for one of an ordinary skill in the art, at the time the invention was made, to combine both references of Gulick so that isochronous tasks can be executed more reliable in a general-purpose operating system (D. Gulick, abstract, col. 2, lines 35 – 36).

26. Regarding **claim 17**, Gulick did not teach the additional limitation as claimed. Nevertheless, D. Gulick teaches one or more endochronous application program interfaces instantiate said isochronous process on said electronic device when said sufficient device resources are available on said electronic device (abstract, col. 7, lines 17 – 29, col. 8, lines 46 – 67, col. 11, lines 41 – 56, fig. 6).

It would have been obvious for one of an ordinary skill in the art, at the time the invention was made, to combine both references of Gulick so that isochronous tasks can be executed more reliable in a general-purpose operating system (D. Gulick, abstract, col. 2, lines 35 – 36).

27. Regarding **claim 18**, Gulick did not teach the additional limitation as claimed. Nevertheless, D. Gulick teaches an operating system adds an isochronous process identifier to an isochronous process list when said isochronous process has been instantiated and is active on said electronic device (col. 5, lines 6 – 13, col. 6, lines 54 – 67).

It would have been obvious for one of an ordinary skill in the art, at the time the invention was made, to combine both references of Gulick so that isochronous tasks can be executed more reliable in a general-purpose operating system (D. Gulick, abstract, col. 2, lines 35 – 36).

28. Regarding **claim 20**, Gulick did not teach the additional limitation as claimed. Nevertheless, D. Gulick teaches the operating system determines whether one or more active

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isochronous processes are ready to be executed on said electronic device by referencing an isochronous process list (abstract, col. 5, line 44 – col. 6, line 7, col. 12, lines 52 – 58, fig. 7).

It would have been obvious for one of an ordinary skill in the art, at the time the invention was made, to combine both references of Gulick so that isochronous tasks can be executed more reliable in a general-purpose operating system (D. Gulick, abstract, col. 2, lines 35 – 36).

29. **Claims 45 – 48 and 50** are rejected on the same ground as stated in claims 15 – 18 and 20 above.

30. Claims 21 - 23, 25, 51 - 53, and 55 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gulick (US 6,624,743), as applied to claims 1 and 19 above, in view of Gulick (US 6,502,123, hereinafter D. Gulick), as applied to claim 20 above, and further in view of Doi (US 5,815,504).

31. Regarding **claim 21**, Gulick teaches of an isochronous scheduler is invoked when one or more isochronous processes are ready to be executed (abstract, col. 4, lines 6 – 39, col. 6, line 16 – col. 7, line 2, and figs. 6 – 7). Gulick did not teach the additional limitation as claimed.

D. Gulick teaches of executing non-isochronous task if no additional isochronous tasks are pending (col. 3, lines 37 – 44). Both references of Gulick did not teach about the plesiochronous scheduler. Nevertheless, Doi teaches of identifying and processing the plesiochronous signal when it is received (abstract, col. 1, lines 37 – 66).

It would have been obvious for one of an ordinary skill in the art, at the time the invention was made, to combine both teachings of Gulick to Doi's so that the system is capable of processing a variety of different signals to enhance the system processing power.

32. Regarding **claim 22**, Gulick did not teach the additional limitations as claimed. Nevertheless, D. Gulick teaches the isochronous scheduler performs a selection procedure on the active isochronous processes to produce a selected isochronous process based upon selection factors that include one of a relative process importance, a process length, a process function, and a process time-sensitive of said isochronous process (abstract, col. 11, line 40 – col. 12, line 9, fig. 7).

It would have been obvious for one of an ordinary skill in the art, at the time the invention was made, to combine both references of Gulick so that isochronous tasks can be executed more reliable in a general-purpose operating system (D. Gulick, abstract, col. 2, lines 35 – 36).

33. **Claims 23, 25, 51 – 53 and 55** are rejected on the same ground as stated in claims 21 and 22 above.

Allowable Subject Matter

34. **Claims 8, 13, 26 – 28, 30, 38, 43 and 56 – 58 and 60** would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

35. **Claims 24, 29, 54 and 59** are allowed.

Response to Arguments

36. Applicants' arguments filed 7/9/04 have been fully considered but they are not persuasive for the reason set forth below.

37. With respect to Applicants' remark that Gulick fails to anticipate the present invention as recited in amended claims 1 and 31 (page 20, 3rd paragraph and also page 24, 4th – 5th paragraphs), the Examiner would like to point that the claims language recite "...one or more selected processes including an isochronous process and a plesiochronous process". Since claims 1 and 31 expresses the **OR** condition, the reference needs to show only one of either one of the limitations, in which an isochronous process, as shown in the rejection for claims 1 and 31 above.

38. In response to applicants' argument that the references fail to show certain features of applicant's invention (page 20, last paragraph – page 21, 2nd paragraph), it is noted that the features upon which applicant relies (i.e., the substantial differences between the teachings of Gulick and the present invention) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Further, while it is appropriate to use the specification to determine what applicants intends a term to mean, a positive limitation from the specification cannot be read into a claim that does not impose that limitation. A broad interpretation of a claim by Office personnel will reduce the possibility that the claim, when issued, will be interpreted more broadly than is justified or intended. Applicants can always amend a claim during prosecution to better reflect the intended scope of the claim.

39. Applicants' arguments (page 25, last paragraph – page 26, 1st paragraph) fail to comply with 37 CFR 1.111(b) because they amount to a general allegation that the claims define a patentable invention without specifically pointing out how the language of the claims patentably distinguishes them from the references.

40. With respect to applicants' remark that the rejection of claims 23, 25, 53, and 55 is improper because they have a substantial number of claimed limitations, which have not been addressed elsewhere in the writing (page 26, last paragraph – page 27, 2nd paragraph), the examiner disagrees.

Regarding claims 23 and 53, claims 22 and 52 have the limitations isochronous scheduler performs selection on active processes to produce a selected process. It is obvious that isochronous scheduler will schedule and execute the selected process after the selection procedure because that is mainly the scheduler function so that isochronous data can be processed in a timely manner. Thus, claims 22 and 52 can read on claims 23 and 53 and

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therefore is improper when rejected on the same ground as stated above, in this case claims 22 and 52.

Similarly with regarding to claims 25 and 55, claims 1, 31 recite the limitations of picokernel configured to schedule and execute the selected isochronous process and claims 20 - 21 and 50 - 51 recites the limitations of picokernel determines which of the active processes are ready to be executed and invokes an isochronous scheduler to perform the job. Hence, all ready (series) processes are selected, scheduled and executed by the picokernel indirectly when the picokernel invokes an isochronous scheduler. Thus, claims 25 and 55 can read on claims 1, 20, 21, 31, 50 and 51 and therefore is improper when rejected on the same ground as stated above, in this case claims 1, 20, 21, 31, 50 and 51.

41. In response to applicants' argument that the cited references do not suggest a combination that would result in applicants' invention (page 27, 3rd paragraph), the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981).

42. In response to applicants' argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning (page 27, last paragraph - page 28, 2nd paragraph), it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction

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based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

Conclusion

43. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Lindsey et al. (US Pat. Application Publication 2001/0010694) disclosed a system provides a multi-format adaptive plesiochronous network, which multiplexes multiple sources of isochronous data together. Haulin et al. (US 5,692,022) disclosed a bit synchronizer for the interpretation of a bit data stream received in a receiver when strobed by an isochronous or plesiochronous clock signal, which lies in the receiver time domain.

44. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

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however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lilian Vo whose telephone number is 571-272-3774. The examiner can normally be reached on Monday - Thursday, 7:30am - 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Meng-Ai An can be reached on 571-272-3756. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Lilian Vo
Examiner
Art Unit 2127

lv
September 22, 2004


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